

# Allergy teaching is suboptimal and heterogeneous in the undergraduate medical curriculum in the UK

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## ABSTRACT

**Aim** To record the level of allergy teaching occurring in UK medical schools. The UK has experienced an 'allergy epidemic' during the last 3–4 decades. Previous government reviews have emphasised the importance of allergy education and training, treating common allergies in primary care with referral pathways to a specialist and the creation of regional networks. It is acknowledged that the delivery of allergy teaching in UK medical schools is variable, despite the well-recognised need.

**Methods** All consultant members of the British Society for Allergy and Clinical Immunology involved in teaching medical students were invited to partake in qualitative research, employing an online questionnaire for data collection. Participants were asked to comment on the format of the allergy teaching delivered, the student participation and the clinical opportunities provided. Students were recruited to complete a similar survey as supporting evidence.

**Results** 44 responses were collected, representing 64.7% of medical schools in the UK. Clinical allergy placements were compulsory in 31.8% of medical schools that responded. In 36.4%, it was reported that less than 10% of students had an opportunity to take an independent history from a patient with allergic disease, or practise using an epinephrine autoinjector. 90.9% responded that an allergy rotation was not offered to final year students.

**Conclusions** Allergy undergraduate teaching is suboptimal and heterogeneous in UK medical schools and there is a real need for standardisation as a means to enhance quality of care.

patients, families and carers and strongly supported the RCP findings. The need for an urgent improvement in allergy education was subsequently discussed in the House of Commons and summarised in the Department of Health Review in 2004<sup>7</sup>. In the years following this report, The Royal College of General Practitioners (RCGP) aimed to prioritise allergy care and raise awareness of allergy in the community.<sup>8</sup> Despite this, a follow-up survey conducted in 2009 reported that few notable changes had occurred, and only 29% of responding General Practitioners (GPs) received formal allergy training.<sup>9</sup> A cross-sectional survey of GP Specialty Training (GPST) Programmes has since been conducted. Over 60% of these programmes provided some allergy training showing notable improvement.<sup>10</sup> However, the reasons for poor allergy care are multifactorial and therefore must *all* be addressed before significant development is observed.

The paucity of allergy education in individual UK medical undergraduate courses has previously been highlighted. In 2006, a systematic analysis of learning objectives and modules taught during the 5 years of an undergraduate medical degree at the University of Edinburgh was conducted.<sup>11</sup> Formal teaching on allergy-related topics was acknowledged in 26.0% of the modules over the 5-year curriculum; however, significant gaps were identified. Suitable assessment in allergy, alongside a coherent core allergy curriculum that can be adapted for use in all UK medical schools, was recommended to increase the impact of allergy education.<sup>11</sup> Further information gathering from medical schools throughout the UK is required to implement such a modification.

## METHODS

To ensure results were up to date and a reflection of current teaching, primary research was the chosen method of data collection. Secondary data analysis was limited due to the lack of previous research conducted in this area.<sup>11</sup>

Two online questionnaires were prepared using the software package Survey Monkey. The initial survey was designed for allergists and immunologists involved in medical school education. It comprised seven questions (see Appendices 1–6 in the online Supplementary file 1), quantified using percentage ranges.

The questions covered the following topic areas:

Q1–2: Introductions

Q3: Format of teaching delivered

Q4–5: Compulsory teaching and student participation

## INTRODUCTION

It is estimated that over 20% of the European population suffer from an allergy, making it the 'most prevalent chronic disease in Europe'.<sup>1</sup> In the UK, approximately one-third of the population (21 million) live with an allergy, of whom 7 million are significant enough to require specialist allergy care<sup>2</sup>; however, this demand is not being met.<sup>2</sup> Hospital admissions for anaphylaxis across England and Wales over a 20-year period showed an increase from 1.0 to 7.0 cases per 100 000 population per year,<sup>3</sup> over this time frame, highlighting the increasing incidence rates of allergic disease in the UK.<sup>4</sup>

The Royal College of Physicians (RCP) report in 2003 demonstrated the need for common allergies to be recognised early and treated in primary care due to the shortage of specialist allergists.<sup>5</sup> The House of Commons Health Committee report<sup>6</sup> acknowledged the distress caused by allergies to



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## Box Those universities represented by the consultant questionnaire

## Universities represented

- ▶ Aberdeen
- ▶ Barts
- ▶ Birmingham
- ▶ Cambridge
- ▶ Cardiff
- ▶ Central Lancashire
- ▶ Exeter Imperial
- ▶ Kings
- ▶ Leeds
- ▶ Leicester
- ▶ Liverpool
- ▶ Manchester
- ▶ Newcastle
- ▶ Norwich
- ▶ Nottingham
- ▶ Oxford
- ▶ Plymouth
- ▶ Queens
- ▶ Southampton
- ▶ University College London
- ▶ Warwick

Q6–7: Clinical opportunities provided.

An email containing a link to the online survey was circulated to all consultant members of the British Society for Allergy and Clinical Immunology (BSACI). A cover letter was attached, explaining the purpose and aims of the study.

The second survey (see Appendices 8–14 in the online Supplementary file 1) targeted a medical student representative from each university. Students were recruited by email via the relevant university's student medical society. The questions were equivalent to the consultant questionnaire to allow comparison of the two populations.

## RESULTS

Forty-four consultant members of the BSACI responded to the online survey. Responses were obtained from  $n=22$  (66.7%) of UK medical schools (box). The response from the student survey was  $n=12$  (35.3%).

Responses from the consultant survey demonstrated that compulsory allergy teaching (in any format) occurred in 16 (72.7%) of the represented universities, with lectures/plenaries being the most popular format. Clinical placement in allergy was compulsory in 7 (31.8%) (figure 1).

For those in which clinical placement was not compulsory ( $n=17$ ), only one respondent estimated their students' attendance to clinical placement as greater than 75%. An allergy rotation option was offered to final year students in two (9.1%) of the universities from whom responses were obtained (figure 2). This finding was supported by the results of the student survey.

Further analysis of clinical placements revealed that practical opportunities were varied. Respondents from eight medical schools (36.3%) reported that less than 10% of their students had an opportunity to take an independent history from a patient with an allergy (figure 3). One consultant answered that 100% of the students at their associated university had this opportunity (figure 3).

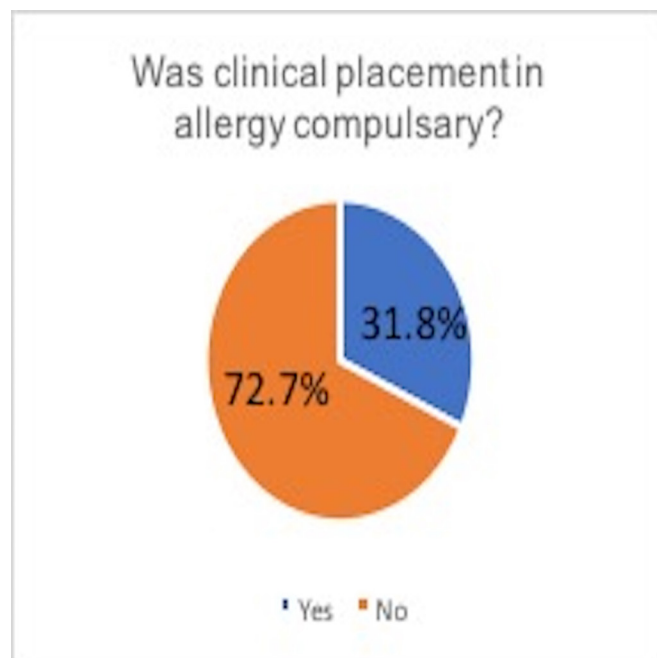


Figure 1 Pie chart showing compulsory placement.

In 17 medical schools (77.3%), consultants reported that less than 10% of students gained practical exposure to skin prick testing during their undergraduate degree. In one university, 100% of their students had this opportunity (figure 4).

Five respondents (20%) reported that over 75% of students were presented with the chance to practise using an epinephrine autoinjector; however,  $n=9$  (40.9%) of universities answered that less than 10% of students had this experience (figure 5).

Although the response rate was lower, the student questionnaire demonstrated similar findings in keeping with the results of the consultant survey. One student representative reported that 100% of students at their medical school had the opportunity to take a history from a patient with allergic disease; however,

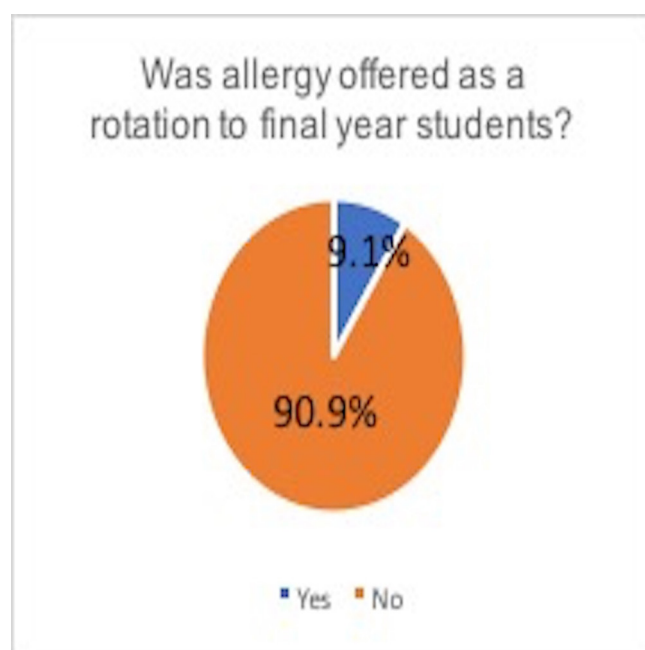
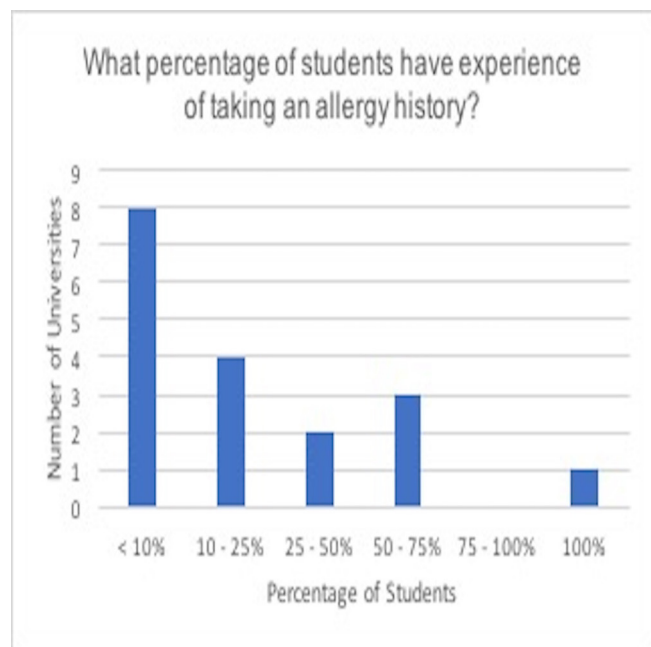


Figure 2 Pie chart showing final year rotation options.

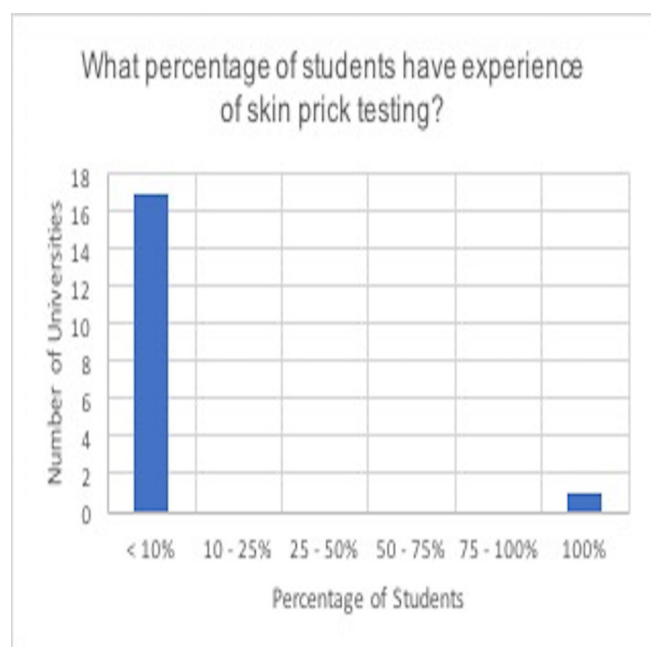


**Figure 3** Bar chart showing history taking according to consultant questionnaire results.

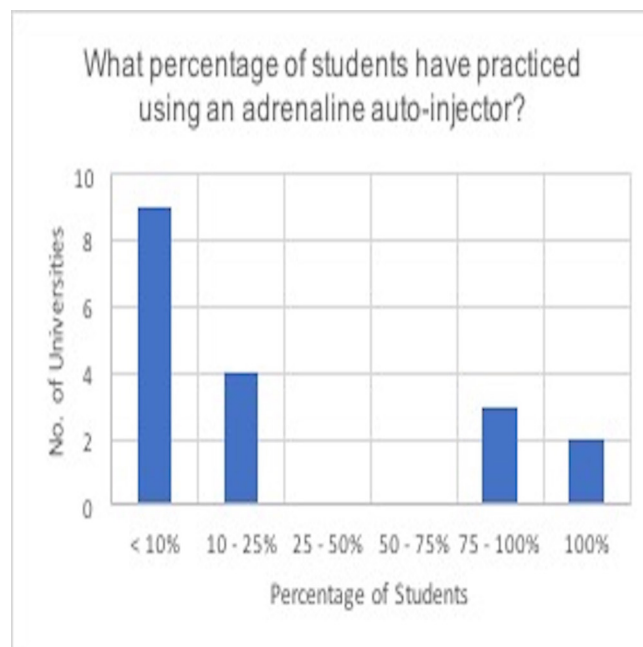
the majority of student representative responses estimated that only 10%–25% had this opportunity. Almost 60% of the representatives stated that less than 10% of the student population had practical experience of skin prick testing. Fifty per cent of student respondents stated that less than 25% of students had practical teaching experience regarding the administration of epinephrine autoinjector, demonstrating further correlation.

## DISCUSSION

This survey has demonstrated heterogeneity with respect to inclusion of allergy in the UK undergraduate medical school



**Figure 4** Bar chart showing skin prick testing according to consultant questionnaire results.



**Figure 5** Bar chart showing data on adrenaline autoinjector training according to consultant questionnaire results.

curriculum, the format of teaching and practical opportunities offered, including training in the use of epinephrine autoinjectors.

The National Institute of Clinical Care Excellence drug allergy guidance<sup>3</sup> is targeted to all UK clinicians and is based on acquisition of basic allergy history-taking knowledge and skills. However, this study has shown that the majority of UK medical students are not gaining experience in taking an allergy-related history. History taking is an essential component to allergy practice and can alone be enough to make a diagnosis.<sup>12</sup> Systematic information gathering allows for the clinical features consistent with an allergic reaction to be recognised as well as the identification of potential allergens. The history will also assess patients' quality of life, highlight difficulties that an individual may have avoiding a particular allergen and subsequently guides the investigation and management plan.<sup>13</sup> Furthermore, family history is a significant risk factor for a patient to develop an allergic disease and this can only be determined through history taking.<sup>14</sup>

Similarly, the majority of medical schools in the UK are not teaching students how to train patients in the use of epinephrine autoinjectors, despite the significant proportion of the population suffering from allergic disease. A study of fatal anaphylaxis showed that although epinephrine was used in 62% of fatal anaphylaxis, it was used prior to arrest in only 14%.<sup>15</sup> This highlights the importance of early recognition of anaphylaxis and the prompt administration of epinephrine in its management, which depends on optimal training of the clinician to ensure adequate patient understanding of what to do in these circumstances.

This is, as far as we are aware, the first study which has looked at the undergraduate medical student exposure to allergy teaching across the UK. Responses were received from over 60% of UK medical schools. Answers from both educators and students were gathered, ensuring a thorough description was uncovered.

However, the main limitations were that the written curriculum was not formally analysed. Allergic diseases are managed across several specialties, including primary care, and as a result the survey of BSACI members may potentially underestimate the allergy teaching currently being delivered. Furthermore, as

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some of the respondents chose to skip questions of the online survey, the resulting total illustrated by figures 3–5 is less than the recorded number of responses. Finally, as the lower response rate from the medical school population could be a potential limitation, the data collected was only used to support the results of the consultant survey.

In many hospitals, allergy is a relatively new specialty, therefore, does not have a place in clinical rotations, with most teaching confined to lecture theatres. Allergy is an outpatient and day case specialty, whereas traditional medical school hospital attachments focus on inpatient specialties. However, the success of a few departments across the UK demonstrates that clinical-based allergy teaching can be successfully delivered from outpatient and day-case settings.

According to the survey results, it could be argued that the services in place are not being utilised to their full potential, highlighted by the lack of opportunity for final year placements in allergy. Encouraging students' attendance in allergy placements and providing a standardised curriculum throughout the UK universities would have multiple benefits. As well as developing abilities for future practice and providing more efficient use of resources, it would give students valuable insight into a career in allergy.

In conclusion, this nationwide survey highlights heterogeneity in allergy education and training in the UK undergraduate medical schools. Addressing these gaps by encouraging medical schools and allergy departments to work together to deliver standardised clinical allergy teaching to all medical schools would provide opportunities for students to develop vital skills

and contribute to the improvement of the quality of allergy care in the future.

**Correction notice** This article has been corrected since it was published Online First. The spelling of the second author's name and his affiliation has been corrected.

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## Take home message

The result of this survey would drive towards standardisation of the allergy curriculum in UK medical schools and would therefore impact the clinical and educational practice of allergists and immunologists.



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